

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant: George Borden IV Group Art Unit: 2621
Serial No.: 09/505,449 Examiner: Czekaj, David J.
Filed: February 16, 2000 Customer No.: 55648
Conf. No. 5400 Docket No.: SLA0179 (7146.0045)
Title: METHOD OF SELECTING TARGETS AND GENERATING FEEDBACK IN
OBJECT TRACKING SYSTEMS

APPELLANT'S BRIEF

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May 18, 2009

Mail Stop APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
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Dear Sir:

BACKGROUND

This brief is in furtherance of the Notice of Appeal, filed in this case on March 20, 2009.

The fees required under 37. C.F.R. § 41.20(b)(2), and any required petition for extension of time for filing this brief and fees therefore, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief comprises these subjects under the headings, and in the order, set forth below:

- I. Real Party in Interest
- II. Related Appeals and Interferences
- III. Status of Claims
- IV. Status of Amendments
- V. Summary of Claimed Subject Matter
- VI. Grounds for Rejection to be Reviewed on Appeal
- VII. Argument
- VIII. Conclusion
- IX. Claims Appendix
- X. Evidence Appendix
- XI. Related Proceedings Appendix

The final page of this brief bears the practitioner's signature.

REAL PARTY IN INTEREST

The real party in interest in this appeal is Sharp Laboratories of America, Inc., assignee of the captioned application.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that will directly affect, be directly affected by, or have a bearing on the Board's decision in this appeal.

STATUS OF CLAIMS

A. TOTAL NUMBER OF CLAIMS IN THE APPLICATION

There are 20 claims currently pending in the application.

B. STATUS OF ALL CLAIMS

Claims canceled: 21-26, 30-32

Claims withdrawn: 27-29

Claims pending: 1-20

Claims allowed: None

Claims objected to: None

Claims rejected: 1-20

C. CLAIMS ON APPEAL

Claims 1-20 are on appeal.

A copy of the claims on appeal is set forth in the Claims Appendix to this Brief.

STATUS OF AMENDMENTS

No amendment was filed after final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

The claimed subject matter is generally directed to a method of tracking a target object in a video system. In particular, and as claimed in independent claim 1, the claimed method may comprise four steps. The first step is initiating the object tracking system (*See Specification at p. 7 lines 5-8*). The second step is automatically increasing magnification of a recorded sequence of

frames of an image in response to initiating the object tracking system free from further user input while the object tracking system is activated (*See Specification at p. 7 lines 8-13*). The third step is receiving a user selection of an object of interest in at least one frame of the image while the object tracking system is activated and while the image is being automatically increased in magnification in response to initiating the tracking system (*See Specification at p. 7 lines 13-15*). The fourth step is designating the selected object of interest as the target of the tracking system (*See Specification at p. 7 lines 20-29*), wherein the magnification is automatically decreased based upon an automatically calculated level of confidence, that the object is being tracked, falling below a threshold (*See Specification at p. 9 lines 9-19*).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection presented for review are whether claims 1-20 are unpatentable under 35 U.S.C. §103(a) over Ito, U.S. Pat. No. 6,404,455 in view of Loveland, U.S. Pat. No. 6,37,819.

ARGUMENT

The Examiner rejected claims 1-20 under 35 U.S.C. § 103(a) as being unpatentable over Ito, U.S. Patent No. 6,404,455 in view of Loveland, U.S. Patent No. 6,437,819. The Examiner's rejection is improper. Independent claim 1, from which the remaining claims each respectively depend, recites a method for automatically tracking a moving object in an image, e.g. an image from a surveillance camera. That claim requires that an object tracking system be initiated and that automatically, in response to that initiation, the image is to be magnified until a user

designates the target that is to be tracked. Both of the prior art references cited by the Examiner teach the reverse of this process, i.e. a target is to be designated, and *then* magnification upon that designated target is to occur.

Ito discloses a surveillance system comprising two cameras. A first camera has a wide field of view upon a scene pre-recorded to obtain a reference image that can be compared to an input sequence of frames so that a human-shaped “difference” between the reference image and the input frames can be detected. *See* Ito at col. 7 lines 24-34 and col. 6 lines 30-55. Once such an object is detected, its position and movement vectors are mapped to the coordinate system of the second camera, which has a zoom lens mounted to a pan-and-tilt head so that the person tracked can be continuously shown in magnification for identification purposes. *See Id.* at col. 7 lines 50-65.

The Examiner indicates that the object tracking system of Ito is initiated when that system detects the objects to be tracked, and that once the system is initiated the zoom lens of the camera on the pan-and-tilt head magnifies the object automatically detected. *See* Office Action dated December 24, 2008 at p. 2. Ito, however, makes clear that the magnification operation is functionally preconditioned on an *earlier* identification of the object upon which magnification is to be centered. *See* Ito at col. 11 lines 45-50. In other words, the disclosure of Ito indicates that the automated act of zooming a camera lens can occur as a response to the identification of the object upon which the lens needs to be zoomed, and not as a *precursor* to a manual identification of an object, as is claimed by the applicant.

Loveland also teaches nothing more than zooming in and out on an object already identified as one to be tracked. *See* Loveland at col. 3 lines 56 -65 (“The tracking system is activated by the guard who uses the mouse to click on a person . . . in a field of view of [the Pan

Tilt Zoom] camera. . . . The tracking system then takes over control of the panning and zooming function of the PTZ camera . . . moving and focusing it so as to keep the shopper in constant view of the camera.”)(reference numerals omitted); *see also* *Id.* at col. 4 lines 49-51 (disclosing that the image is automatically zoomed to ensure that “the shopper’s image fills a reasonably large part of the image.”). Thus, while Loveland teaches the manual identification of an object to be tracked, that reference is merely cumulative to Ito’s disclosure that such identification occur prior to the step of magnifying an image upon that identified object. The only obvious modification of Ito, based on the disclosure of Lee, is to replace the Ito’s step of automatically identifying an object to be tracked with manually identifying an object to be tracked, but even in that circumstance, the step of automated magnification of the image would still occur after the step of identifying the target to be tracked, and not *vice versa* as claimed.

For these reasons, independent claim 1 and its dependent claims 2-20 each patentably distinguishes over the cited prior art combination of Ito and Loveland, and the Examiner’s rejection of these claims under 35 U.S.C. § 103(a) should therefore be reversed.

CONCLUSION

The Examiner’s respective rejections of claims 1-20 should be reversed, and the claims should be found patentable.

Respectfully submitted,



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CLAIMS APPENDIX

1. In a video system, a method of tracking a target object comprising the steps of:
 - (a) initiating an object tracking system;
 - (b) automatically increasing magnification of a recorded sequence of frames of an image in response to initiating said object tracking system free from further user input while said object tracking system is activated;
 - (c) receiving a user selection of an object of interest in at least one frame of said image while said object tracking system is activated and while said image is being automatically increased in magnification in response to said initiating said tracking system; and
 - (d) designating the selected said object of interest as said target of said tracking system, wherein said magnification is automatically decreased based upon an automatically calculated level of confidence that said object is being said tracked falling below a threshold.
2. The method of claim 1 wherein said image is magnified by adjustment of an optical lens.
3. The method of claim 1 wherein said image is magnified by adjusting an electrical signal representing, at least, a part of said image.
4. The method of claim 1 wherein said increase in magnification is an automatic result of said step of initiating said object tracking system.

5. The method of claim 1, further comprising the step of automatically changing the scale of said image following designation of said object as said target.

6. The method of claim 1 wherein said object of interest is selected by the steps of:

- (a) moving a cursor to superimpose said cursor on said object of interest in said image; and
- (b) signaling said tracking system that said cursor is superimposed on said object of interest.

7. The method of claim 1 wherein said step of designating is accomplished by using a touch sensitive display.

8. The method of claim 1 wherein said step of selecting said object of interest and said step of designating said object use a control mechanism that does not magnify said image.

9. The method of claim 1 wherein said steps of selecting and designating are performed simultaneously by touching a touch sensitive display.

10. The method of claim 9 wherein in response to initiating said object tracking system, said touch sensitive display is set to simultaneously perform said selecting and designating steps upon the next touch of said touch sensitive display.

11. The method of claim 6 wherein said image is magnified by adjustment of an optical lens.

12. The method of claim 6 wherein said image is magnified by adjusting an electrical signal representing, at least, a part of said image.

13. The method of claim 6 wherein said magnification is an automatic result of said step of initiating said object tracking system.

14. The method of claim 6 further comprising the step of automatically changing the scale of said image following designation of said object as said target.

15. The method of claim 1 wherein said object of interest is selected by the steps of:

(a) moving said image to superimpose an image of a cursor on said object of interest;

and

(b) signaling said tracking system that said cursor is superimposed on said object of interest.

16. The method of claim 15 wherein in response to initiating said object tracking system, a touch sensitive display is set to simultaneously perform said steps of selecting and said designating upon the next touch of said touch sensitive display.

17. The method of claim 15 wherein said image is magnified by adjustment of an optical lens.

18. The method of claim 15 wherein said image is magnified by adjusting an electrical signal representing, at least, a part of said image.

19. The method of claim 15 wherein said increase in magnification is an automatic result of said initiating said object tracking system.

20. The method of claim 15 further comprising the step of automatically changing the scale of said image following designation of said object as said target.

21-26 (Canceled).

27 (Withdrawn). The method of advising an operator of the performance of an object tracking system comprising the steps of:

(a) monitoring a level of confidence that said tracking system is tracking a target; and
(b) altering magnification of an image visible to said operator in response to a change in said level of confidence.

28 (Withdrawn). The method of claim 27 wherein said magnification is changed as said level of confidence decreases.

29 (Withdrawn). The method of claim 27 wherein said magnification is decreased if said object tracking system loses track of said target.

30-32 (Canceled).

EVIDENCE APPENDIX:

None.

RELATED PROCEEDINGS APPENDIX:

None.